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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Saint-Gobain Corporation
1 New Bond Street
Box 15138
Worcester, MA 01615-0138

EXAMINER

BISSETT, MELANIE D

ART UNIT	PAPER NUMBER
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1711

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/886,846

Applicant(s)

SWEI ET AL.

Examiner

Melanie D. Bissett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-16 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. The rejections based on 35 USC 102 and 103 have been maintained.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-2 and 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Gladstone et al. as evidenced by Borsellino et al.

4. From a prior Office action:

7. Gladstone discloses an adhesive system for joining overlapped ends of a coated abrasive article comprising a component having free isocyanate groups, a hydroxyl terminated polyurethane polyester, and a member containing active hydrogen groups (abstract). Thus, the composition comprises an alcohol, more specifically a polyol, by the inclusion of the hydroxyl terminated polyurethane polyester prepolymer. Possible active hydrogen containing members include polyester- and polyether-polyurethane isocyanate blocked prepolymers (col. 6 lines 1-27). It is the examiner's position that both active hydrogen-containing components, because they are prepolymers, would be considered "high molecular weight". The reference notes suitable molecular weights of the hydroxyl terminated polyurethane polyesters to be between 2,000 and 4,000 (col. 5 lines 30-37). Gladstone teaches a method of providing the adhesive as a film on a coated abrasive strip, joining the ends of the strip, and heating the adhesive to cure the components (col. 9 lines 21-45). Both high molecular weight polyurethane prepolymers containing hydroxyl functionality and high molecular weight polyurethane blocked isocyanate prepolymers are present in the adhesive for crosslinking.

8. Gladstone teaches the urethane isocyanate blocked prepolymers, believing that the prepolymers are disclosed in prior patents. However, Gladstone does not mention the blocking agents used in the prepolymers. The Borsellino reference, referred to by Gladstone, teaches polyurethane isocyanate blocked prepolymers, where the isocyanates are blocked with imine, oxime, or ketoxime blocking agents (col. 3 lines 28-55). Thus, Gladstone suggests the use of such prepolymers blocked with oxime blocking agents.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gladstone et al.

7. From a prior Office action:

11. Gladstone teaches that active hydrogen containing components include isocyanate blocked prepolymers and amine-functional components (col. 6 lines 1-27). However, the reference does not exemplify the use of both compounds together. The shelf life can be optimized by choosing different compounds. It is the examiner's position that it would have been prima facie obvious to choose combinations of preferred materials, including an isocyanate blocked prepolymer and an amine-functional component, by conventional experimentation to optimize shelf life of the adhesive.

8. Claims 1-5, 7-13, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van et al. in view of Goel.

9. From a prior Office action:

Van discloses abrasive articles, including endless belts. The endless belts are made by cutting strips of abrasive material, applying a urethane or other splicing adhesive, joining the ends of the strips, and heating the belt (col. 14 lines 44-65). However, the reference does not specify the type of adhesive to be used as a splicing adhesive. Goel teaches a polyurethane adhesive composition comprising a mixture of a polyisocyanate blocked with a phenolic compound and a polyamine curing agent (abstract). The adhesives are applied to flexible substrates and provide improved flexibility, toxicity, moisture resistance, and strength over other conventional adhesives (col. 2 lines 20-43). Preferred blocked isocyanates include high molecular weight isocyanate prepolymers having phenolic blocking agents (col. 2 lines 44-58). Also, Goel teaches mixing the polyamine crosslinking agent with a polyol (col. 3 lines 38-48). Examples show the adhesives applied to cloth. Because Goel discloses a conventional polyurethane adhesive for flexible materials including fabric, it is the examiner's position that it would have been prima facie obvious to use the adhesive of Goel's invention in Van's abrasive belts to form a bond from an adhesive having improved flexibility, toxicity, moisture resistance, and strength.

Allowable Subject Matter

10. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claim 17 is allowed.

12. The following is a statement of reasons for the indication of allowable subject matter:

13. The closest prior art, Gladstone et al., teaches an adhesive system for joining overlapped ends of a coated abrasive article comprising a component having free isocyanate groups, a hydroxyl terminated polyurethane polyester, and a member containing active hydrogen groups. Possible active hydrogen containing members include polyester- and polyether-polyurethane isocyanate blocked prepolymers. It is the examiner's position that an abrasive belt formed by Gladstone's invention would have the same material composition in belt form as that of the applicant's claimed belt. However, the reference does not teach a method of forming an adhesive from essentially blocked isocyanates. Therefore, it is the examiner's position that the applicant's claimed method of using essentially blocked isocyanates with high molecular weight polyurethanes containing hydroxyl functionality would provide a novel and unobvious step over the prior art.

Response to Arguments

14. In response to the applicant's arguments that the adhesives of the present application have improved pot life because the reactants are prevented from reacting until a desired time, it is noted that the claims rejected using the Gladstone reference are directed toward the coated belt and not to the uncured adhesive. The applicant has not shown that the use of an adhesive formed by blocked isocyanates would form a belt which is materially different from one formed from an adhesive comprising free isocyanates. Although the applicant has alleged that an adhesive according to Gladstone's invention would "likely...reduce penetration of the coated abrasive substrate" to form a weaker bond with a different structure, the applicant has provided no evidence to support such a claim.

15. Regarding the applicant's arguments that Gladstone does not provide motivation for using a blocked isocyanate system including an amine or teach the advantages of long pot life, it is first noted that the examiner has provided motivation for including an amine to optimize the shelf life of the material. Note that the applicant's arguments of improved properties are not drawn directly to the obviousness of including an amine compound. Also, the examiner has pointed to the reference, which teaches that different active hydrogen compounds may be chosen for combination with the isocyanate and polyol to achieve longer film shelf life. It has been the examiner's position that it would have been prima facie obvious to choose combinations of preferred materials to optimize shelf life of the adhesive. The motivation for combining

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need not be the same motivation for choosing specific components as the applicants have found.

16. Regarding the applicant's arguments that the free isocyanate of Gladstone's invention would react freely with an amine and thus would result in a short pot life, it is first noted that there is no mention of pot life in the claims. Furthermore, the reference has taught the combination of free isocyanate components with active hydrogen components and has concluded that films formed from the adhesives have improved shelf life.

17. Regarding the Van and Goel references, the applicant argues that one of ordinary skill in the art would not look to Goel for an abrasive belt adhesive. It is the examiner's position that Goel teaches adhesives having improved strength, flexibility, and moisture resistance. The adhesives are taught as applicable to flexible substrates including fabrics. Thus, although the Goel reference does not specify the use for abrasive belts, one of ordinary skill in the art would recognize the benefits of Goel's adhesive as applicable in the adhesive belt application. Where Van teaches the use of a polyurethane adhesive but does not specify the composition, Goel teaches a polyurethane adhesive having improved strength, flexibility, and moisture resistance. It is the examiner's position that these properties would be beneficial in the abrasive belt applications of Van's invention. Furthermore, because of the strength of the adhesives in Goel's invention and because the materials are polyurethanes, it is the examiner's position that one of ordinary skill in the art would expect success from the combination of the teachings.

Conclusion

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie D. Bissett whose telephone number is (571) 272-1068. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mdb



James J. Seidleck
Supervisory Patent Examiner
Technology Center 1711